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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,516	11/24/2003	Tadashi Matsumoto	Q78530	1958

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EXAMINER	
PARRIES, DRU M	

ART UNIT	PAPER NUMBER
2836	

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/718,516	MATSUMOTO ET AL.	
	Examiner	Art Unit	
	Dru M. Parries	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7 and 8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *4,7 and 8* is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8-14-06 & 11-24-03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed October 16, 2006 have been fully considered but they are not persuasive. Regarding claim 1, Piesinger teaches detecting the current that flows through a residual circuit. He doesn't teach explicitly how to balance loads but he does teach the importance of it and that it needs to be done. David teaches part of the processor that controls switches. Just because he doesn't call them "slave stations" doesn't mean they do not read on the claim limitations; they perform the exact same function (necessarily present), therefore it is inherent. Also, the Applicant's argument that his slave stations are external to the control center is moot, since that was not claimed. Again, just because David calls it a processor, and not a control unit, doesn't mean that it doesn't read on the claim limitation.

Also, David teaches (1) the need for canceling load unbalance, but not explicitly how and (3) the need for current sensors, but not explicitly what type, and Piesinger teaches (2) a circuit incorporated between high and low voltage distribution lines. Therefore, there is no need to resort to hindsight. Also, Kumegawa teaches detecting the magnitude of the zero-phase current, based on the phase currents of the phases, and determining if it is larger than a predetermined value, and if it is, a phase change-over is performed. Piesinger teaches changing loads from the phase having the maximum current to the phase having the minimum current.

Regarding the argument that the Examiner hasn't stated a motivation to modify Piesinger/David with Kumegawa, in paragraph 4 of the previous Office Action it states, the reason is "to implement a zero-phase current detector into the system to detect a different type of fault and in turn add another dimension of protection to the system." Also, in regards to the

combination of Piesinger and David, these references are in the same field of endeavor, load balancing.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Piesinger (2004/0263147), David et al. (6,018,203), and Kumegawa (JP 05-126881 A). Piesinger teaches a three-phase power distribution system providing high voltage and low voltage distribution lines ([0002]). He teaches a current transformer (TS) and a residual circuit (DS and everything downstream) (Fig. 1). He also teaches the importance of load balancing and to do that by transferring some of the loads from a more heavily loaded phase to a more lightly loaded one ([0003]). Piesinger fails to teach the inner circuitry of DS and how it provides power to subsequent downstream branches. David teaches a control system for canceling load unbalance of a three-phase circuit power distribution system wherein three phase power is input and distributed evenly to output branches. David's system comprises phase current detectors (16-20), phase change-over switches (22-30), a control center (12) that inherently has a phase change-over slave station because it controls all of the switches. (Col. 3, lines 64-67; Col. 4, lines 1-10; Fig. 1A) David fails to teach detecting zero-phase current and comparing it to a predetermined value to determine the necessity of phase change-over and explicitly how the

cancellation of the unbalance occurs. Kumegawa teaches detecting a zero phase current and comparing it to a threshold value to determine the necessity of phase change-over. It would have been obvious to one of ordinary skill in the art at the time of the invention to implement David's distribution system into DS with Piesinger's method of canceling load unbalance since Piesinger was silent as to what the inner circuitry of DS is and David's system is known in the art to work and perform the desired functions. It also would have been obvious to one of ordinary skill in the art at the time of the invention to implement a zero-phase current detector into the system to detect a different type of fault and in turn add another dimension of protection to the system.

4. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piesinger (2004/0263147), David et al. (6,018,203), and Kumegawa (JP 05-126881 A) as applied to claim 1 above, and further in view of Ellermeyer (3,555,290). Piesinger, David and Kumegawa teach a control system as described above. These references fail to explicitly teach the configuration of the switches with only three inputs. Ellermeyer teaches a configuration of a switching unit (10 & 11) with three inputs (for the three phases) and a single output. It would have been obvious to one of ordinary skill in the art at the time of the invention to implement this switch design into the combined invention because he was silent on a precise configuration and this one is known in the art to have worked. It also would have been obvious to one of ordinary skill in the art at the time of the invention to omit the fourth input to David's switches (i.e. NC) since it has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. *In re Karlson*, 136 USPQ 184. Also, if a "non-connection" configuration was needed, the switch in Ellermeyer (11)

would be controlled to not make a connection to either input, therefore saving an extra switch/input.

Allowable Subject Matter

5. Claims 4, 7 and 8 are allowed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dru M. Parries whose telephone number is (571) 272-8542. The examiner can normally be reached on M-Th from 9:00am to 6:00pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus, can be reached on 571-272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DMP

12-7-2006

CHAU N. NGUYEN
PRIMARY EXAMINER